

I claim:

1. A digital camera system comprising:

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a lens assembly mounted for receiving an image and projecting said image on an image plane;

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a micro-electromechanical (MEMS) system support mechanism for providing at least two positions of movement to a supported element, said MEMS support mechanism being fabricated integrally with said supported element; and

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a semi-conductor image sensor mounted at said image plane for movement on said MEMS support mechanism and being operatively associated with said lens to generate a digital image.

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2. A digital camera system, according to claim 1, wherein said MEMS is an electrostatic resonator.

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3. A digital camera system, according to claim 1, wherein the image sensor is fabricated on a silicon chip in which is imbedded control circuitry and said MEMS is integrally fabricated therewith.

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4. A digital camera system, according to claim 1, wherein said movement of said image sensor provides an auto focus function.

5. A digital camera system, according to claim 1, wherein said lens assembly is mounted for movement on said MEMS for movement relative to said image sensor and said image

sensor is fixed, said movement adapted to provide a zoom function.

6. A digital camera system, according to claim 1, further  
5 comprising:

a substrate for supporting said digital camera system;

10 a first MEMS fabricated on said substrate and connected to said lens system for providing movement of said lens system between at least two positions;

15 a second MEMS fabricated on said substrate and connected to said image sensor for providing movement of said image sensor between at least two positions; and

20 wherein said movement of said lens system and said image sensor is relative to each other to provide both an autofocus and zoom function.

7. A mobile communication device including a system to transmit data over a communication network comprising:

25 a housing containing said communication system;

30 a lens assembly mounted within said housing for receiving an image and projecting said image on an image plane;

a micro-electromechanical (MEMS) system support mechanism for providing at least two positions of movement to a supported element, said MEMS support

mechanism being fabricated integrally with said supported element; said MEMS mounted within said housing; and

5           a semi-conductor image sensor mounted at said image plane for movement on said MEMS support mechanism and being operatively associated with said lens to generate a digital image.

10   8. A mobile communication device including a system to transmit data over a communication network, according to claim 7, wherein said MEMS is an electrostatic resonator.

15   9. A mobile communication device including a system to transmit data over a communication network, according to claim 7, wherein the image sensor is fabricated on a silicon chip in which is imbedded control circuitry and said MEMS is integrally fabricated therewith.

20   10. A mobile communication device including a system to transmit data over a communication network, according to claim 7, wherein said movement of said image sensor provides an auto focus function.

25   11. A mobile communication device including a system to transmit data over a communication network, according to claim 7, wherein said lens assembly is mounted for movement on said MEMS for movement relative to said image sensor and said image sensor is fixed, said movement  
30   adapted to provide a zoom function.

12. A mobile communication device including a system to transmit data over a communication network, according to claim 7, further comprising:

a substrate for supporting said digital camera system;

5           a first MEMS fabricated on said substrate and connected to said lens system for providing movement of said lens system between at least two positions;

10           a second MEMS fabricated on said substrate and connected to said image sensor for providing movement of said image sensor between at least two positions; and

15           wherein said movement of said lens system and said image sensor is relative to each other to provide both an autofocus and zoom function.